

2023

**Electronics & Hardware (Vocational)**

Total marks : 50

Time : 2 hours

**General instructions :**

- i) *Approximately 15 minutes is allotted to read the question paper and revise the answers.*
- ii) *All questions are compulsory except Q. nos.18 to 23 where general option is given.*
- iii) *The question paper consists of 23 questions.*
- iv) *Marks allocated to every question are indicated against it.*

**N.B:** *Check that all pages of the question paper are complete as indicated on the top left side.*

**1. Choose the correct answer from the given alternatives: 10x1=10**

- i. The strength of an electric field is represented by
  - (a) Tesla
  - (b) Newton per coulomb
  - (c) Gauss
  - (d) Coulomb per second
- ii. A relay's contact electrical life ranges from
  - (a) 100,000 to 500,000 cycles
  - (b) 100,000 to 400,000 cycles
  - (c) 100,000 to 300,000 cycles
  - (d) 100,000 to 200,000 cycles
- iii. A motor that reverses the direction of an electrical current at regular times is called
  - (a) DC motors
  - (b) Brushed (BDC) motors
  - (c) AC motors
  - (d) Induction motors
- iv. Which of the following is not a part of a mixer grinder?
  - (a) Blade
  - (b) Motor unit
  - (c) Stirrer fan
  - (d) Speed selector
- v. Which of the following juicers is known as cold press juicers?
  - (a) Centrifugal juicers
  - (b) Masticating juicers
  - (c) Triturating juicers
  - (d) Reamers
- vi. Which of the following generates microwaves in a microwave oven?
  - (a) Magnetron
  - (b) Turntable
  - (c) Fan blower
  - (d) High voltage diode
- vii. If the microwave oven is making a buzzing or humming noise, then it could be a problem of
  - (a) Magnetron
  - (b) Thermo protector
  - (c) Power settings
  - (d) High voltage diode
- viii. Under which type of fire does wood, paper, cloth, rubber and plastic come?
  - (a) Type A
  - (b) Type B
  - (c) Type C
  - (d) Type D
- ix. The full form of SOP is
  - (a) Set of protocols
  - (b) Standard operating procedures
  - (c) Set of procedures
  - (d) Standard operating protocols
- x. Which of the following is not a sustainable goal according to the United Nations?
  - (a) Clean water and sanitation
  - (b) Quality education
  - (c) Reduced inequality
  - (d) Population

**Answer the following questions in one word or one sentence:**

- 2. What is RPM of motor? 1
- 3. What is the working principle of fuse? 1
- 4. Name any two kitchen ingredients that are used to clean mixer grinder. 1
- 5. Mention any two reasons that cause overload in mixer grinder. 1
- 6. State one use of a microwave oven. 1
- 7. What are the ovens inside panels and windows made of? 1
- 8. Mention any two common workplace chemical hazards. 1
- 9. Name any two examples of non-verbal communication. 1

**Answer the following questions in 20-50 words:**

- 10. State Fleming's left hand rule. 2
- 11. What are relays? List one way how protective relays prevent equipment damage. 1+1=2
- 12. Differentiate between masticating and centrifugal juicers. 2
- 13. What is a mixer? Name any two parts of electric mixer. 1+1=2
- 14. What is e-waste? Write an example of an e-waste. 1+1=2
- 15. List any two ways to protect data in a computer. 2
- 16. What does the acronym PASS stand for in fire extinguishers? 2
- 17. Write any two functions of an entrepreneur. 2

**Answer any four from the following questions in 60-100 words:**

- 18. Explain brushed (BDC) and brushless (BDLC) motors. 4
- 19. Explain any four frequently occurring faults in mixer/juicer/grinder. 4
- 20. Explain any four important features of microwave oven. 4
- 21. Write the full form of BEE. What is BEE star rating? Who puts BEE star rating labels? 1+2+1=4
- 22. State any four reasons to quit fighting a fire and to evacuate immediately. 4
- 23. What is time management? Mention three ways to effectively manage time. 1+3=4

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